

# Econ 311: Behavioral and Experimental Economics

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# Course Overview

# What This Course is About

- ▶ Introduction to behavioral and experimental economics
- ▶ Behavioral economics: study of human behavior that falls outside of the standard model from Econ 301
- ▶ Experimental economics: application of experimental methods to economic questions
  - ▶ Experiment: a *designed* procedure for collecting data with the goal of testing a scientific hypothesis

# What I Hope You Get out of This Course

- ▶ Explain how humans make decisions involving judgement, risk, time, and social factors at the level that another Wes student would be able to understand
- ▶ Describe mathematically the state-of-the-art theories we use to explain behavior in these settings
- ▶ Make hypotheses about novel experiments or economic settings involving individual or group decision-making
- ▶ Design, run, and analyze your own lab, field, or online experiment

# The Standard Model

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# The Standard Model

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  - ▶ Correct beliefs
    - ▶ About the world
    - ▶ About others' level of rationality
  - ▶ vNM expected utility
  - ▶ Purely selfish
  - ▶ Smoothly discounted expected utility over time
  - ▶ Infinite computational power
  - ▶ Frame-insensitive

# The Behavioral Approach

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# The Behavioral Approach

- ▶ What are some more realistic assumptions?
  - ▶ Persistently incorrect beliefs about the world: Non-Bayesian updating
  - ▶ Incorrect beliefs about the rationality of others: Behavioral game theory
  - ▶ non-EU preferences: prospect theory, loss aversion, ambiguity aversion
  - ▶ Social preferences
  - ▶ Non-DEU time preferences: hyperbolic discounting, self-control issues
  - ▶ Limited computational power: bounded rationality, heuristics
  - ▶ Frame-sensitivity



# Types of economic data

## 1. Naturally occurring data

- ▶ Data that is observational, ie not designed by researcher
- ▶ Includes so-called “natural” experiments

## 2. Controlled data

- ▶ Natural field experiment: subjects don't know they are in experiment
- ▶ Framed field experiment: subjects know they are in experiment, but are in a familiar setting
- ▶ Artifactual field experiment: subjects in the lab, but doing familiar activities (eg doctors in the lab choosing treatment options)
- ▶ Lab experiment

See List and Reiley (2008) for more details

# Introductions

- ▶ Juniors and seniors
- ▶ Mostly econ majors
- ▶ Should have already taken Econ 300 and 301
- ▶ Introduce yourselves
  - ▶ First name
  - ▶ Major(s)
  - ▶ Home town
  - ▶ Enrolled in class or not
  - ▶ Surprising fact about you or about the world at large

# Administrative Details

- ▶ Go over Moodle page
- ▶ Go over syllabus

## Survey Results

# Cognitive Reflective Test

- ▶ A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?

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- ▶ If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? 5 minutes (not 100)
- ▶ In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

# Cognitive Reflective Test

- ▶ A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost? 5 cents (not 10)
- ▶ If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? 5 minutes (not 100)
- ▶ In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? 47 days (not 24)

# System 1 vs System 2

- ▶ System 1: Fast, intuitive
- ▶ System 2: Slow, analytical
- ▶ Can we force you to use System 2 over System 1 by, say, making the font hard to read?
- ▶ Hypothesis: more correct answers with tiny font

# The Trolley Problem

- ▶ There is a runaway trolley barreling down the railway tracks. Ahead, on the tracks, there are five people tied up and unable to move. The trolley is headed straight for them.
- ▶ You are standing some distance off in the train yard, next to a lever. If you pull this lever, the trolley will switch to a different set of tracks. However, you notice that there is one person on the side track.
- ▶ You have two options:
  1. Do nothing, and the trolley kills the five people on the track.
  2. Pull the lever, diverting the trolley onto the side track where it will kill one person.
- ▶ Which is the correct choice?

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- ▶ You are standing some distance off in the train yard, next to a lever. If you pull this lever, the trolley will switch to a different set of tracks. However, you notice that there is one person on the side track.
- ▶ You have two options:
  1. Do nothing, and the trolley kills the five people on the track. (11%)
  2. Pull the lever, diverting the trolley onto the side track where it will kill one person. (89%)
- ▶ Which is the correct choice?

# The Trolley Problem

- ▶ There is a runaway trolley barreling down the railway tracks. Ahead, on the tracks, there are five people tied up and unable to move. The trolley is headed straight for them.
- ▶ You are on a bridge under which it will pass, and you can stop it by putting something very heavy in front of it. As it happens, there is a very fat man next to you, and your only way to stop the trolley is to push him over the bridge and onto the track.
- ▶ You have two options:
  1. Do nothing, and the trolley kills the five people on the track.
  2. Push the man over the bridge and onto the track, and the trolley kills him.
- ▶ Which is the correct choice?

# The Trolley Problem

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- ▶ You have two options:
  1. Do nothing, and the trolley kills the five people on the track. (50%)
  2. Push the man over the bridge and onto the track, and the trolley kills him. (50%)
- ▶ Which is the correct choice?

# Why Are These Situations So Different?

- ▶ Outcome is the same in both (5 deaths vs 1 death)
- ▶ What is different?



# Why Are These Situations So Different?

- ▶ Outcome is the same in both (5 deaths vs 1 death)
- ▶ What is different?
  - ▶ Framing
  - ▶ Agency
  - ▶ Conceptions of fairness

# iPad Purchase

- ▶ Imagine that you are about to purchase an iPad for \$500 and an iPad case for \$25.
- ▶ The salesman tells you that the case comes with the iPad at another branch of the store, located 20 minutes away.
- ▶ The iPad is the same price at this other store.
- ▶ Would you make the trip to the other store?
  1. Yes
  2. No

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- ▶ The iPad is the same price at this other store.
- ▶ Would you make the trip to the other store?
  1. Yes (70%)
  2. No (30%)

# iPad Purchase

- ▶ Imagine that you are about to purchase an iPad for \$500 and an iPad case for \$25.
- ▶ The salesman tells you that (the iPad is on sale for \$475) at another branch of the store, located 20 minutes away.
- ▶ The (case) is the same price at this other store.
- ▶ Would you make the trip to the other store?
  1. Yes (70%)
  2. No (30%)

# iPad Purchase

- ▶ Imagine that you are about to purchase an iPad for \$500 and an iPad case for \$25.
- ▶ The salesman tells you that (the iPad is on sale for \$475) at another branch of the store, located 20 minutes away.
- ▶ The (case) is the same price at this other store.
- ▶ Would you make the trip to the other store?
  1. Yes (70%) (80%)
  2. No (30%) (20%)

# What is Going on Here?

- ▶ Discount on the entire bundle is the same in both versions
- ▶ This is an example of a *heuristic* that leads to a *bias*
- ▶ Heuristic
  - ▶ Definition: A decision rule that does not come from maximizing utility
  - ▶ Often leads to an adequate answer in most settings but very wrong answers in other settings
  - ▶ Example: discounts on more expensive items are better
- ▶ Bias
  - ▶ Definition: A systematic error
  - ▶ Errors are common in standard economics, but they usually average out
  - ▶ Example: People are more attracted to the discount on the bigger-ticket item even when benefit to them is the same